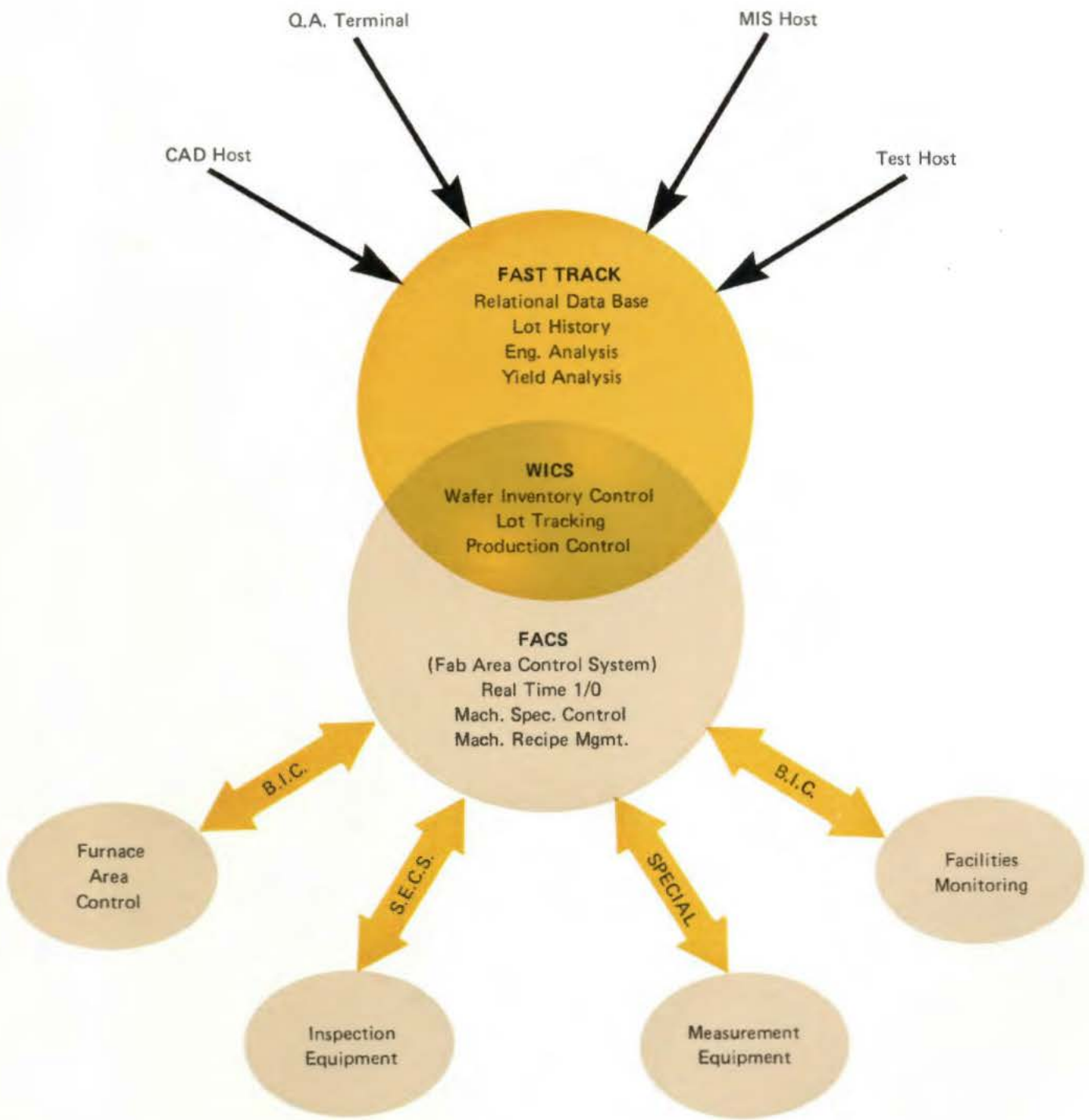


Bruce Systems



**BRUCE RELATES**

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# IT'S 11:23 DO YOU KNOW WHAT YOUR WAFERS ARE DOING?

For years now with systems like WICS (Wafer Inventory Control Systems), Bruce has provided Wafer Fabrication Managers with information to answer this question. And much more...

**PROVEN LEADERSHIP** Bruce Systems Engineers have installed more Wafer Fab information systems than anyone else in the business.

WICS has provided Wafer Fab Managers with real time systems that control the flow of wafers through their complex process steps. WICS defines lots, moves, splits, merges and bonuses them. WICS defines process steps, specifies machines,

monitors equipment status, examines queues, etc. WICS provides real time updates as well as lot histories.

**REAL TIME WORK STATION** Bruce has long supported the concept of a real time work station with the ability to provide instantaneous information and lot histories to help today's Fab Manager make critical process decisions. Line balancing algorithms and maintenance schedulers provide additional management control tools for the Dynamic Semiconductor Manufacturing Process.

**BRUCE RELATES** Now Bruce's Fast Track Data Base Enhancement provides the Fab Manager with a relational data base that lets WICS grow into an automation host that provides powerful report generation and statistical analysis capabilities. WICS Multiprocessor Architecture allows modular system integration into your Fab Automation Plans. Isn't it about time you find out more information. Write or call:



Bruce Systems

THE LEADING SUPPLIER OF  
DIFFUSION AND WAFER  
FABRICATION DATA SYSTEMS

Esquire Road  
North Billerica, MA 01862-2596 USA  
Tel (617) 667-4111, Telex: 94-7489



A DIVISION OF  
BTU Engineering



**FAST TRACK RELATIONAL DATA BASE:** Bruce's intelligent hardware data base offloads the data base management function from the host CPU. Typical CPU involvement in complex DBMS activities is approximately 10% of that required by software relational DBMS. This frees the automation host CPU for the real time control for which it is intended.

Fast Track provides all data storage and retrieval functions. It minimizes disk I/O by caching the most commonly used data pages. All transaction management services, file protection and security as well as an integrated data dictionary are automatically provided.

Full concurrency control is provided for the multi user environment. In addition, the Fast Track Data Base allows up to 24 host computers to access up to 50 data bases. Bruce's integrated query language facilitates the creation, modification and access to the data bases. Up to 16 SMD disks are supported in addition to tape transport backup.

**ENGINEERING ANALYSIS:** A complete engineering analysis and color graphics capability exists to readily present the information stored in the fast track data base. Full data entry is simplified via a forms oriented system. Powerful data handling tools are available to operate on rows and columns of data to readily report on stored information. Arithmetic, logical, relational, text concatenation and date arithmetic operators simplify data transformation.

Full color graphics are provided to create scatter plots, line-graphs, histograms, bar charts, pie charts, with full format control.

An extensive set of statistical tests and analyses are provided along with simplified control chart generation. Linear and polynomial curve fitting and complex systems modeling commands as well as easy to use structured programming statements provide powerful data analysis capabilities.

**BRUCE RELATES:** Bruce's WICS real-time inventory control system combined with its fast track relational data base and sophisticated engineering analysis tools provides today's CAM engineer with a system that relates the real time process control functions to the informational requirements required to manage the semiconductor process.



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**SEMICONDUCTOR FACTORY AUTOMATION:** The quest for the paperless fab operation has necessitated the integration of many diverse technologies into unified shop flow systems. Process and product complexities have led to more sophisticated process control equipment and to more automated material transport equipment aimed at reducing particulate count. The increased need to provide real time test data and facilities status information to the Computer Aided Manufacturing (CAM) engineers for engineering analysis have led to complex real time work stations typically referred to as Automation Hosts.

The evolution of the automation host has required a clean interface into the more traditional MRP archival host systems with which MIS professionals have provided order entry, material tracking, sales order and planning capabilities.

Bruce provides this interface with the addition of its Fast Track Relational Data Base to its WICS inventory control system.

**WICS:** Bruce is the industry leader with more wafer fab management systems installed than anyone else. WICS (Wafer Inventory Control Systems) has long provided complete wafer lot inventory tracking, product management and real time data handling for large scale wafer processing facilities. WICS allows:

<b>PROCESSES</b>	To be defined, edited, started, updated, etc.
<b>LOTS</b>	To be started, edited, deleted, merged, bonused, split and to be updated, etc.
<b>MACHINES</b>	To be specified, legal operations identified, operators qualified, etc.
<b>DATA</b>	To be captured in real time – automatically.
<b>REPORTS</b>	To be issued by lots, by wafer count at inventory points or at machines, by product type, by breakage codes, etc.
<b>WICS ENHANCEMENTS</b>	Permit cycle time reports, line balancing capability, automatic priority setting, slow moving lot analysis, feed forward planning and routing.



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